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### Definitions of Combinational logic on the Web:

- In digital circuit theory, combinatorial logic (also called combinational logic) is a type of logic circuit whose output is a function of only the present input. This is in contrast to sequential logic, in which the output depends not only on the present input but also on the history of the input.

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### combinatorial logic

Combinatorial logic is a concept in which two or more input states define one or more output states, where the resulting state or states are related by defined rules that are independent of previous states. Each of the inputs and output(s) can attain either of two states: logic 0 (low) or logic 1 (high). A common example is a simple logic gate.

In combinatorial logic, the output is a function of the input at a specific time. An example is the AND gate. Suppose an AND gate has two inputs, X and Y, and one output, Z. The AND operation is symbolized by an asterisk (\*). The operation of the two-input AND gate can be represented by the following truth table:

X	Y	X * Y
0	0	0

0	0	0
0	1	0
1	0	0
1	1	1

The output of this logic gate is high if and only if both inputs are high. If either or both of the inputs are low, the output is low. If the states of the inputs change periodically, the output always obeys the rules depicted in the above truth table. The current state of the device is not affected by preceding states. This contrasts combinatorial logic with sequential logic, in which the current state of the device is affected by previous states.

Logic gates are one of several types of devices that use combinatorial logic. Other forms include encoders, decoders, multiplexers, comparators, and latches.

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# combinational logic element

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**combinational logic element:** A device having at least one output channel and one or more input channels, all characterized by discrete states, such that at any instant the state of each output channel is completely determined by the states of the input channels at the same instant.

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## combinational logic

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Also known as "combinatorial logic," it refers to a digital logic function made of primitive logic gates (AND, OR, NOT, etc.) in which all outputs of the function are directly related to the current combination of values on its inputs. Any changes to the signals being applied to the inputs will immediately propagate through the gates until their effects appear at the outputs. Contrast with [sequential logic](#).

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